

SERIAL

**CSC 103**  
**TEST Two**

Date: 28<sup>th</sup> Dec 2015

Time: 16:00 - 17:15

STUDENT NAME	Answer Key
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STUDENT ID #	2	0								SECTION #	
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QUESTION #	MARKS		COMMENTS
1	10		
2	8		
3	10		
4	12		
TOTAL	40		

**NOTE: THERE ARE SIX (6) PAGES IN THIS TEST**  
**ONLY ONE SOLUTION WILL BE CONSIDERED FOR EACH QUESTION**  
**WRITE YOUR ANSWERS CLEARLY**  
**LAST PAGE IS EMPTY**

### Question 1 ( 10 marks )

Show the output of each code in the corresponding box to the right.

```
(1) int x = 4, y = -3, z = -4;
    if ( x < y || y > z)
        cout << 2*(y - z) << endl;

    if (x < 6 && y > -9 )
        cout << y*x << '\t' << y+z*2 << '\n';
    else if ( !( z < -1) ){
        cout << x + y << endl ;
        cout << 3*(x - y) << endl;    }
    cout << 3*(x - y) << endl;
```

```
2
-12 -11
21
```

4

```
(2) int i = 8, n = 2;
    while (i > 1)
    {
        cout << i << "\t";
        if ( i % 2 == 0 ) {
            n += i;
            cout << n << endl;
        }else
            cout << '*' << endl;
        i -= 3;
    }
```

```
8 10
5 *
2 12
```

3

```
(3) int p, v;
    for (p=1 ; p <= 3 ; p++)
    {
        cout<<"{";
        for (v=11 ; v > 10 ; v--)
            cout << v+p ;
        cout<<"}"<<endl;
    }
```

```
{12}
{13}
{14}
```

3

## Question 2 ( 8 marks )

A wholesale department is offering reduced prices on large orders of kitchen utensils. Write a C++ program to calculate and display the net price of an order based on three user inputs: **Price** (*float*), **Quantity** (*int*) and **Payment method** (*char*: **A** for cash in advance, **D** for cash on delivery). The net price of the order is calculated as follows:

**Net price** = (**Price** - **Discount1** - **Discount2**) \* **Quantity**

**Discount1** = 4% of **Price** for Quantities of more than or equal to 1000 otherwise 2% of **Price**.

**Discount2** = 5% of **Price** for *cash in advance* payment and no discount for *cash on delivery*.

### SAMPLE INPUT/OUTPUT

Enter Price, Quantity and Payment Method (A or D)  
**10 2500 A**  
The net price is 22750

### Answer:

```
#include<iostream>
using namespace std;

int main()
{
    float  Price, Discount1, Discount2;
    int    Quantity;
    char   Payment;

    cout<<"Enter Price, Quantity and Payment method: \n";
    cin >> Price >> Quantity >> Payment;

    if ( Quantity >= 1000 )
        Discount1 = Price * 0.04;
    else
        Discount1 = Price * 0.02;

    if ( Payment == 'A')
        Discount2 = Price * 0.05;
    else
        Discount2 = 0;

    float netprice = (Price - Discount1 - Discount2) * Quantity;

    cout<<"The net price is "<< netprice << endl;

    return 0;
}
```

### Question 3 ( 10 marks )

In one of the introductory courses in a university, passing students are assigned a final grade of the uppercase letter **P** or lowercase **p** while failing students are assigned the letter **F** or **f**. Write a C++ program that asks the user to enter grades (P/p or F/f) of 30 students, then calculates and displays the percentage of passing and the percentage of failing students.

#### Answer

```
#include<iostream>
using namespace std;
```

```
int main()
```

```
{
```

```
    char grade;
```

```
    int countp = 0, countf = 0;
```

```
    for (int i=1; i<=30; i++)
```

```
    {
```

```
        cout<<"Enter assigned grade: ";
```

```
        cin>> grade;
```

```
        if ( grade == 'P' || grade == 'p')
```

```
            countp++;
```

```
        else if ( grade == 'F' || grade == 'f')
```

```
            countf++;
```

```
    }
```

```
    cout<< countp/30.0*100 <<"% are assigned passing grade\n";
```

```
    cout<< countf/30.0*100 <<"% are assigned failing grade\n";
```

```
    return 0;
```

```
}
```

#### Question 4

( 12 marks )

Consider a file named *transaction.txt* which contains unknown number of lines. Each line contains data of one transaction as follows: username (*string*), amount (*float*), and membership number (*int*). Write a C++ program that reads the data from the file then displays on screen the number of users, the total amount and the highest amount. Reading from file should stop when one or more of the conditions given below become true:

1. The end of the file has been reached.
2. The username "user999" is reached

*transaction.txt*

user001	12.5	12345
user002	5.2	87542
user003	33.1	93568
...		
...		

**Sample Screen Output**

Number of users:	54
Transactions total amount :	2658.7
The highest amount :	280

#### Answer

```
#include<iostream>
#include<fstream>
using namespace std;
```

```
int main()
```

```
{
    ifstream  fin;
    fin.open("transaction.txt");
    string    username;
    float     amount;
    int       number;
```

```
    float     sum = 0;
    int       count = 0;
    float     max = 0;
```

```
    fin>> username;
```

```
    while ( fin )           // while ( fin && username!= "user99")
```

```
{
    if ( username=="user99")    break;
```

```
    fin>> amount >> number;
```

```
    sum += amount;
```

```
    if ( amount > max )
```

```
        max = amount;
```

```
    count++;
```

```
    fin>> username;
```

```
}
```

1.5 [ cout<<"Number of users: "<< count << endl;  
cout<<"Transactions total amount: "<< sum << endl;  
cout<<"The highest amount: "<< max << endl;

```
fin.close();  
return 0;  
}
```